

# ACM TRANSACTIONS ON MATHEMATICAL SOFTWARE

VOLUME 9 • 1983

Editor-in-Chief  
Algorithms Editor

John R. Rice  
Richard J. Hanson

Associate Editors

Paul T. Boggs  
W. J. Cody  
Richard A. DeMillo  
David P. Dobkin  
Richard J. Fateman  
Ivor S. Francis  
C. W. Gear

Morven Gentlemen  
Ruediger Loos  
Roy E. Marsten  
John Reid  
Michael A. Saunders  
Hans J. Stetter  
Paul N. Swartztrauber

Published by the Association for Computing Machinery

Copyright © 1983. Association for Computing Machinery, Inc., 11 West 42nd Street, New York, NY 10036

Information for Authors	265
<b>Contributed Papers</b>	
AMOS, D. E., Uniform Asymptotic Expansions for Exponential Integrals $E_n(x)$ and Bickley Functions $Ki_n(x)$	467
ARMSTRONG, R. D., A Computational Study of a Multiple-Choice Knapsack Algorithm	184
BECK, P., A Reduced Gradient Algorithm for Nonlinear Network Problems	57
BURKARDT, JOHN V., see Rheinboldt, Werner C.	
COLE, GEORGE E., JR., see Zave, Pamela	
CRYER, C. W., The Efficient Solution of Linear Complementarity Problems for Tridiagonal Minkowski Matrices	199
DIAZ, J. C., FORTRAN Packages for Solving Certain Almost Block Diagonal Linear Systems by Modified Alternate Row and Column Elimination	358
DUFF, I. S., The Multifrontal Solution of Indefinite Sparse Symmetric Linear Systems	302
ENGQUIST, M., see Beck, P.	
ENRIGHT, W. H., see Hanson, P. M.	
FAIRWEATHER, G., see Diaz, J. C.	
FESSLER, THEODORE, HURRY: An Acceleration Algorithm for Scalar Sequences and Series	346
FORD, WILLIAM F., see Fessler, Theodore	
FOURER, ROBERT, Modeling Languages Versus Matrix Generators for Linear Programming	143
GAFFNEY, P. W., NITPACK: An Interactive Tree Package	395
GREENBERG, HARVEY J., A Functional Description of ANALYZE: A Computer-Assisted Analysis System for Linear Programming Models	18
HANSON, P. M., Controlling the Defect in Existing Variable-Order Adams Codes for Initial-Value Problems	71
HANSONSMITH, RALPH W., see Watkins, David S.	
HORN, B. K. P., The Curve of Least Energy	441
KEAST, P., see Diaz, J. C.	
KESSEL, K. A., see Gaffney, P. W.	
KUNG, D. S., see Armstrong, R. D.	
LASDON, L., see Beck, P.	
MCKINNEY, W. R., see Gaffney, P. W.	
MCMAMEE, JOHN M., A Sparse Matrix Package—Part II: Special Cases	340
MORGAN, ALEXANDER P., A Method for Computing All Solutions to Systems of Polynomial Equations	1

# ACM TRANSACTIONS ON MATHEMATICAL SOFTWARE

VOLUME 9 • 1983

Editor-in-Chief  
Algorithms Editor

John R. Rice  
Richard J. Hanson

Associate Editors

Paul T. Boggs  
W. J. Cody  
Richard A. DeMillo  
David P. Dobkin  
Richard J. Fateman  
Ivor S. Francis  
C. W. Gear

Morven Gentlemen  
Ruediger Loos  
Roy E. Marsten  
John Reid  
Michael A. Saunders  
Hans J. Stetter  
Paul N. Swartztrauber

Published by the Association for Computing Machinery

Copyright © 1983. Association for Computing Machinery, Inc., 11 West 42nd Street, New York, NY 10036

Information for Authors

265

## Contributed Papers

- AMOS, D. E., Uniform Asymptotic Expansions for Exponential Integrals  $E_n(x)$  and Bickley Functions  $Ki_n(x)$  467
- ARMSTRONG, R. D., A Computational Study of a Multiple-Choice Knapsack Algorithm 184
- BECK, P., A Reduced Gradient Algorithm for Nonlinear Network Problems 57
- BURKARDT, JOHN V., see Rheinboldt, Werner C.
- COLE, GEORGE E., JR., see Zave, Pamela
- CRYER, C. W., The Efficient Solution of Linear Complementarity Problems for Tridiagonal Minkowski Matrices 199
- DIAZ, J. C., FORTRAN Packages for Solving Certain Almost Block Diagonal Linear Systems by Modified Alternate Row and Column Elimination 358
- DUFF, I. S., The Multifrontal Solution of Indefinite Sparse Symmetric Linear Systems 302
- ENGQUIST, M., see Beck, P.
- ENRIGHT, W. H., see Hanson, P. M.
- FAIRWEATHER, G., see Diaz, J. C.
- FESSLER, THEODORE, HURRY: An Acceleration Algorithm for Scalar Sequences and Series 346
- FORD, WILLIAM F., see Fessler, Theodore
- FOURER, ROBERT, Modeling Languages Versus Matrix Generators for Linear Programming 143
- GAFFNEY, P. W., NITPACK: An Interactive Tree Package 395
- GREENBERG, HARVEY J., A Functional Description of ANALYZE: A Computer-Assisted Analysis System for Linear Programming Models 18
- HANSON, P. M., Controlling the Defect in Existing Variable-Order Adams Codes for Initial-Value Problems 71
- HANSONSMITH, RALPH W., see Watkins, David S.
- HORN, B. K. P., The Curve of Least Energy 441
- KEAST, P., see Diaz, J. C.
- KESSEL, K. A., see Gaffney, P. W.
- KUNG, D. S., see Armstrong, R. D.
- LASDON, L., see Beck, P.
- MCKINNEY, W. R., see Gaffney, P. W.
- MCNAMEE, JOHN M., A Sparse Matrix Package—Part II: Special Cases 340
- MORGAN, ALEXANDER P., A Method for Computing All Solutions to Systems of Polynomial Equations 1

REID, J. K., see Duff, I. S.	
RHEINOLDT, WERNER C., A Locally Parameterized Continuation Process	215
SINHA, P., see Armstrong, R. D.	
SMITH, DAVID A., see Fessler, Theodore	
TARJAN, ROBERT E., Space-Efficient Implementations of Graph Search Methods	326
WATKINS, DAVID S., The Numerical Solution of Separably Stiff Systems by Precise Partitioning	293
WOOTER, J. W., see Gaffney, P. W.	
ZAVE, PAMELA, A Quantitative Evaluation of the Feasibility of, and Suitable Hardware Architectures for, an Adaptive, Parallel Finite-Element System	271
ZOLTNER, A. A., see Armstrong, R. D.	

## Algorithms

AHRENS, J. H., Algorithms 599. Sampling from Gamma and Poisson Distributions	255
AMOS, D. E., Algorithm 609. A Portable FORTRAN Subroutine for the Bickley Functions $Ki_n(x)$	480
—, Algorithm 610. A Portable FORTRAN Subroutine for Derivatives of the Psi Function	494
—, Remark on Algorithm 556. Exponential Integrals	525
BURKARDT, JOHN V., see Rheinboldt, Werner C.	
CODY, W. J., Algorithm 597. Sequence of Modified Bessel Functions of the First Kind	242
DAVIS, GEORGE J., Algorithm 598. An Algorithm to Compute Solvents of the Matrix Equation $AX^2 + BX + C = 0$	246
DIAZ, J. C., Algorithm 603. COLROW and ARCECO: FORTRAN Packages for Solving Certain Almost Block Diagonal Linear Systems by Modified Alternate Row and Column Elimination	376
DIETER, U., see Ahrens, J. H.	
DODSON, DAVID S., Corrigendum. Remark on Algorithm 539, Basic Linear Algebra Subprograms for FORTRAN Usage	140
FAIRWEATHER, G., see Diaz, J. C.	
FESSLER, THEODORE, Algorithm 602. HURRY: An Acceleration Algorithm for Scalar Sequences and Series	355
FORD, WILLIAM F., see Fessler, Theodore	
GAFFNEY, P. W., Algorithm 592. A FORTRAN Subroutine for Computing the Optimal Estimate of $f(x)$	98
—, Algorithm 606. NITPACK: An Interactive Tree Package	418
GAY, DAVID M., Remark on Algorithm 573. NL2SOL—An Adaptive Nonlinear Least-Squares Algorithm	139
—, Algorithm 611. Subroutines for Unconstrained Minimization Using a Model/Trust-Region Approach	503
HANSON, R. J., see Snyder, W. V.	
HERRIOT, JOHN G., Algorithm 600. Translation of Algorithm 507. Procedures for Quintic Natural Spline Interpolation	258
HOPKINS, T. R., Algorithm 605. PBASIC: A Verifier Program for American National Standard Minimal BASIC	391
KEAST, P., see Diaz, J. C.	
KESSEL, K. A., see Gaffney, P. W., Algorithm 606.	
KOHR, K. D., see Ahrens, J. H.	
KROGH, FRED T., ACM Algorithms Policy	261
LARSON, JOHN L., Algorithm 594. Software for Relative Error Analysis	125
MARTELLO, SILVANO, Algorithm 595. An Enumerative Algorithm for Finding Hamiltonian Circuits in a Directed Graph	131
MCKINNEY, W. R., see Gaffney, P. W., Algorithm 606.	
MCNAMEE, JOHN M., Algorithm 601. A Sparse Matrix Package—Part II: Special Cases	344
PAPE, U., Remark on Algorithm 562. Shortest Path Lengths	260
PASTERNAK, MARY E., see Larson, John L.	
PROSKUROWSKI, WLODZIMIERZ, Algorithm 593. A Package for the Helmholtz Equation in Nonrectangular Planar Regions	117
REINSCH, CHRISTIAN H., see Herriot, John G.	
RHEINOLDT, WERNER C., Algorithm 596. A Program for a Locally Parameterized Continuation Process	236
SAUER, FREDERICK W., Algorithm 604. A FORTRAN Program for the Calculation of an External Polynomial	381
SMITH, DAVID A., see Fessler, Theodore	

SNYDER, W. V., Algorithm 607. Text Exchange System: A Transportable System for Manage- 427  
ment and Exchange of Programs and Other Text  
WEST, DAVID H., Algorithm 608. Approximate Solution of the Quadratic Assignment Problem 461  
WISNIEWSKI, JOHN A., see Larson, John L.  
WOOTER, J. W., see Gaffney, P. W., Algorithm 606.

